


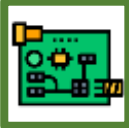









Design and Technology - progression in Procedural Knowledge

- These milestones outline the skills that the pupils will develop through the school in order to secure the key knowledge outlined on the enhanced long term subject plans.
- Long term planning ensures that these are developed at regular intervals within each class, meaning that they will be secure by the time the pupils transition to the next class

Pupils with SEND, through carefully planned support and resources, are expected to achieve these in line with their peers.

Area	Class 1 Skills Milestones	Class 2 Skills Milestones	Class 3 Skills Milestones
	Basic (remembering)	Advancing (Knowing)	Deep (Reasoning)
Food 	<ul style="list-style-type: none"> • Cut, peel or grate ingredients safely and hygienically. • Measure or weigh using measuring cups or electronic scales. • Assemble or cook ingredients. 	<ul style="list-style-type: none"> • Prepare ingredients hygienically using appropriate utensils. • Measure ingredients to the nearest gram accurately. • Follow a recipe. • Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). 	<ul style="list-style-type: none"> • Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. • Demonstrate a range of baking and cooking techniques. • Create and refine recipes, including ingredients, methods, cooking times and temperatures.
Materials 	<ul style="list-style-type: none"> • Cut materials safely using tools provided. • Measure and mark out to the nearest centimetre. • Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). • Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen). 	<ul style="list-style-type: none"> • Cut materials accurately and safely by selecting appropriate tools. • Measure and mark out to the nearest millimetre. • Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). • Select appropriate joining techniques. 	<ul style="list-style-type: none"> • Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape). • Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).
Textiles 	<ul style="list-style-type: none"> • Shape textiles using templates. • Join textiles using running stitch. • Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing). 	<ul style="list-style-type: none"> • Understand the need for a seam allowance. • Join textiles with appropriate stitching. • Select the most appropriate techniques to decorate textiles. 	<ul style="list-style-type: none"> • Create objects (such as a cushion) that employ a seam allowance. • Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). • Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).
Electricals and electronics 	<ul style="list-style-type: none"> • Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage). 	<ul style="list-style-type: none"> • Create series and parallel circuits 	<ul style="list-style-type: none"> • Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).

Computing 	<ul style="list-style-type: none"> • Model designs using software. 	<ul style="list-style-type: none"> • Control and monitor models using software designed for this purpose. 	<ul style="list-style-type: none"> • Write code to control and monitor models or products. 	
Construction 	<ul style="list-style-type: none"> • Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products. 	<ul style="list-style-type: none"> • Choose suitable techniques to construct products or to repair items. • Strengthen materials using suitable techniques. 	<ul style="list-style-type: none"> • Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding). 	
Mechanics 	<ul style="list-style-type: none"> • Create products using levers, wheels and winding mechanisms. 	<ul style="list-style-type: none"> • Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears). 	<ul style="list-style-type: none"> • Convert rotary motion to linear using cams-belts 	
Design, make, evaluate and improve This concept involves developing the process of design thinking and seeing design as a process.	<ul style="list-style-type: none"> • Design products that have a clear purpose and an intended user. • Make products, refining the design as work progresses. • Use software to design. 	<ul style="list-style-type: none"> • Design with purpose by identifying opportunities to design. • Make products by working efficiently (such as by carefully selecting materials). • Refine work and techniques as work progresses, continually evaluating the product design. • Use software to design and represent product designs. 	<ul style="list-style-type: none"> • Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). • Make products through stages of prototypes, making continual refinements. • Ensure products have a high quality finish, using art skills where appropriate. • Use prototypes, cross-sectional diagrams and computer aided designs to represent designs. 	
Evaluate and improve appreciate the design process that has influenced the products we use in everyday life.	<ul style="list-style-type: none"> • Explore objects and designs to identify likes and dislikes of the designs. • Suggest improvements to existing designs. • Explore how products have been created. 	<ul style="list-style-type: none"> • Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. • Improve upon existing designs, giving reasons for choices. • Disassemble products to understand how they work. 	<ul style="list-style-type: none"> • Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. • Create innovative designs that improve upon existing products. • Evaluate the design of products so as to suggest improvements to the user experience. 	
Diversity		<ul style="list-style-type: none"> • Know that everybody can be a designer 	<ul style="list-style-type: none"> • Compare the backgrounds of some well-known designers 	<ul style="list-style-type: none"> • Discuss how your background / where you live in the world might limit your opportunities in design and technology.
Global awareness		<ul style="list-style-type: none"> • Recognise that some of the things that we use will have been designed and made around the world 	<ul style="list-style-type: none"> • Consider where items in school / toys / clothes have been made 	<ul style="list-style-type: none"> • Suggest why some areas are a hotspot for design (eg. Fashion in New York City, London, Milan, and Paris / cars in Germany / Silicon Valley in America)
Rural Aspirations		<ul style="list-style-type: none"> • Know that everything man-made has been carefully designed/started with an idea 	<ul style="list-style-type: none"> • Consider the skills needed to be an effective designer and where they might get their ideas/inspiration 	<ul style="list-style-type: none"> • Discuss the benefits of computer aided design instead of traditional pen and paper methods. • Discuss the various people involved in developing and selling a product (researchers / designers / testers / marketing / selling
Inspired by Nature		<p>We take every opportunity to be inspired by nature, whatever the subject. The might be reflected through resources used, media explored, or linking learning to local and global issues regarding the environment. Opportunities are grasped to celebrate and explore nature in all its guises, from ecosystems to microhabitats, from the smallest organisms to giants of natural world - at all times looking for ways to learn from it.</p>		